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(Under International Convention.)

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COMPLETE SPECIFICATION.

Improvements in Artificial Legs.

I, WILLIAM RIDLEY HONSUCLE, of No. 35 Grove Street, in the City of Boston, County of Suffolk, State of Massachusetts, United States of America, Gentleman, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention relates to artificial legs and is illustrated in the accompanying drawings in which—

Fig. 1 is a side elevation of my improved leg ;

Fig. 2 is a vertical transverse section of the same ;

10 Fig. 3 is a transverse section taken through the ankle-joint ;

Fig. 4 an elevation of one of the leg connections ; and

Fig. 5 a sectional view enlarged taken on line *x, x* in Fig. 2.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

15 My invention relates especially to means for obviating the objectionable features attendant the construction of many artificial legs, the object being particularly to form joints at the ankle and toe which do not need lubricating and appreciably lightens the general structure.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation :

In the drawings, A represents the leg socket which is hollow and its upper portion fitted to receive the stump. An opening, *b*, is formed at the rear for ventilation.

25 The leg socket is constructed with a solid base, B, its hollow portion being formed of veneers or strips of willow, *d*, *d*² the grains of which run at right angles ; that is, alternate layers are wound around the leg and alternate layers extend vertically of the leg.

These veneers are very thin, but when glued together form an extremely rigid structure. The calf and other projections necessary are formed by cork wood, C, 30 cemented to the structure described which may be readily carved into the desired shape.

The whole is then covered with a facing of sheep-skin, *f*, and eyes, *g*, are secured at the top of the socket to receive the supporting harness, or a hip-piece may be attached thereto.

35 The base, B, is provided with two vertical sockets, *h*, in which rubber cushions, *i*, are disposed. From the bottom of one socket, *h*, a flaring opening, *j*, is formed in the heel portion. From the bottom of the companion socket a diagonally arranged opening, *k*, is extended.

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The central portion of the base, B, is projected forming a lip or flange, *m*. The foot, D, has a wooden body, *p*, the heel and shank being formed of cork, *q*, attached to said body and the instep, *r*, is also formed of cork let into the body. Said foot-piece is chambered at *t*, and in said chamber two vertically arranged arcs or segments, *v*, are disposed, said segments being faced with leather or chamois skin, *z*, 5 and the flange or lip, *m*, of the leg working in an opening between said segments.

Projecting vertically from the segments that are two flat springs, *w*, which enter suitable openings in the base of the leg, and hold said leg in position on the segments. The chamber, *t*, is of size suitable to receive the leg base and said leg at the ankle is protected at 15, to overlap the edge of the foot. 10

Eye-bolts, 16, pass through the bottom of the foot into the chamber, *t*, and are connected by cords, 17, with the cushion, *i*, said cords running through said cushion and being held by the cross-piece, 18, of wood.

The tension of the leg connections are adjusted by nuts, 19, turned on to the lower ends of the eye-bolts. The cords, 17, are non-elastic and the rubber cushions, *i*, 15 return the leg to its normal position as it rocks on the segment, *v*.

The toe, H, is formed of wood, and cork, 20, is let in to lighten it. Said toe is hinged to the foot, D, at 25, and on its under side is connected therewith by an elastic tape, 26.

A rubber cushion, 27, is interposed between the toe and foot above the hinge. 20 The hinge is faced with chamois skin, 28.

In the use of my improvement, the leg is attached by the ordinary means to the person of the wearer. The leg, A, rocks freely on the segments and is held by the connections imparting a movement at the ankle closely resembling that of the human leg. 25

The toe-joint with its elastic connection gives sufficient spring to return the foot so that the wearer can walk without any appreciable stiffness and closely imitate the natural movements of the human leg. Moreover, by constructing the parts in the manner described, I am enabled to produce a leg far lighter than many of ordinary construction, and one which does not need oiling at the joints. By facing 30 the segments with wash leather the creaking which attends the use of metallic joints is avoided.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is :— 35

1st. In an artificial leg, a chambered foot portion provided with the two segments in combination with the hollow leg mounted to rock on said segments; devices for holding the leg in engagement with the segments and a projection on the leg entering between said segments.

2nd. In an artificial leg, the leg, A, in combination with the foot, D, having the segments, *v*; the flange, *m*, on said leg projecting between said segments; the springs, *w*, connecting the segments and leg and the flexible connections, 17, all being arranged substantially as specified. 40

Dated this 9th day of June 1894.

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[This Drawing is a reproduction of the Original on a reduced scale.]



